## Chemistry Textbook

**Inorganic Chemistry**. A guide to advanced study. R. B. Heslop and P. L. Robinson. Elsevier, New York, ed. 2, 1963. viii + 591 pp. Illus. $9.

Those who are familiar with the first edition of this text will find no reason to change their opinion of the book after reading the second edition. This quotation from the preface could serve as a review:

"The original aim, which remains unchanged, was a text-book of modest size and price that did not presume to be a substitute for oral instruction or seek to deal with the special topics which give individuality to advanced courses. Extending its scope to include even a selection of these topics would have destroyed the character of the book; hence the only major additions are a description of phosphonitrilic compounds, a section on complexes in aqueous solution, and a short chapter on inorganic polymers. In other parts the treatment has been modified to bring it into line with the results of recent research."

The first 210 pages are devoted to a review of physical chemistry. With the exception of the chapters on bonding, the treatment is below the level of such physical chemistry textbooks as those by W. J. Moore and G. M. Barrow. The discussion of experimental techniques in chapter 6, of crystal symmetry in chapter 7, and of chemical kinetics in chapter 9 are extremely brief. Largely as a result of this brevity, there are several false implications and some errors of fact. The most serious of these (p. 140) is that the 230 space groups are purported to arise from the 14 Bravais lattices "when other symmetry operations are recognized (e.g., rotation of the lattice)."

In view of the fact that the authors do not give complete literature references, it is unfortunate that short, selected bibliographies were not provided at the end of chapters. Indeed, without additional sources of information, the discussion of some topics, in particular those mentioned above, are almost useless to the student.

The authors have an interesting style, and they have chosen appropriate material for inclusion in the chapters on individual elements. However, in these chapters, the application of physical chemistry remains slight.

Despite its shortcomings, Heslop and Robinson's *Inorganic Chemistry* should receive serious consideration for use as a textbook in an inorganic chemistry course offered to students with only moderately good preparation in physical chemistry.

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## Industrial Electronics

**Electronics in Industry**. John Stewart Murphy. Oxford University Press, New York, 1963. viii + 216 pp. Illus. $4.

*Electronics in Industry* is intended for those who have a fair knowledge of electronics and want to understand the operation of some of the new developments in that field, more specifically, in the areas of computers and control processes. This well-organized book covers a vast amount of material in a small space, 213 pages to be exact. The author has chosen his topics well and used the space effectively. Anyone who needs to understand the topics that are considered will find this a most useful addition to his library. The book is not intended for electronic engineers and technicians, since it does not delve into the details of design. Although some mathematical equations are used, the discussion is primarily descriptive.

In the first chapter Murphy points out the significance of the development of electronic devices and then reaches back 75 years or so to trace some of the important developments. The second and third chapters are devoted to valves (vacuum tubes) and semiconductor devices, respectively. The author's brief outline of the functions of tubes and semiconductors is excellent. This is followed by a chapter on electronic circuits. These first four chapters will help the reader understand the applications that are treated in the remaining chapters.

Chapter 5, on synchros and servomechanisms, starts with a brief explanation of the synchro system and its components and explains the transmitter, the receiver, the control transformer, and then servo systems. Measuring devices, transducers, and actuators are considered in the next chapter. In approximately 20 pages, brief descriptions are given of the control system; various types of transducers; measurements of length, thickness, and weight; counting, sorting, and batching; and measurement of light intensity. Two chapters are devoted to computers, one to digital and the other to analog computers.

The final chapter is on control and automation. Here the concept of a fully automatic factory is brought forth. This is followed by brief explanations of computer applications, machine-tool control, and finally, process control.

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## Infrared Compendium

**Infrared Physics and Engineering**. John A. Jamieson, Raymond H. McFee, Gilbert N. Plass, Robert H. Grube, and Robert G. Richards. McGraw-Hill, New York, 1963. xiv + 673 pp. Illus. $19.

Infrared engineering is a very recent development. Whereas devices for measuring the visible region were widely used, even in the 19th century, work on the infrared was handicapped by difficulties encountered in making measurements. Of course that most sensitive and versatile instrument, the human eye, was unavailable as an infrared detector, and the very complicated infrared absorption spectra of most materials, including the atmosphere, hindered progress. Recent interest in infrared radiation has been largely the result of military developments: the Sniperscope and the infrared-controlled missile, for example. But improved techniques now available are opening up many nonmilitary applications.

*Infrared Physics and Engineering* is primarily a compendium for use by designers of infrared systems, but it gives a connected account of theory and practice and, therefore, could be employed as a textbook. A large number of data, otherwise not readily available, are given in the form of tables and graphs. Included are properties of infrared sources, detectors, and transmitting materials. Consideration is given to the radiation thermocouple and the bolometer as well as to selective detec-